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Air Operating Permit Excess Emissions Report Form Part II

Name of Facility	Shell, Puget Sound Refinery	Reported by	Tim Figgie
Date of notification	March 7, 2011	Incident type: breakdown/ upset/startup or shutdown	Breakdown
Start Date	March 7, 2011	Start Time:	00:20 AM
End Date	March 7, 2011	End Time:	6:00 AM
Process unit or system(s): SRU 3			

Incident Description

On March 7, 2011 at approximately 00:20 AM the SRU-4 tripped off-line due to high incinerator temperature. The high incinerator temperature was likely caused by hydrocarbon and hydrogen sulfide intrusion into the incinerator. The hydrocarbon appears to have entered the sour water stripper feed Tank 20 from the plant sour water Tank 105. Tank 105 receives all the plant sour water for oil removal. The recovered oil is sent to the plant slop oil tanks and the sour water stream goes to Tank 20. Tank 20 then feeds the sour water strippers (SWS) on the FCCU, with the overhead gas going to the SRU. It is suspected that hydrocarbon in the SWS overhead gas caused the upset.

An investigation into the incident found that the oil side level indication in Tank 105 had been flat-lined at 7.2% since February 26, 2011 until March 7 at about 2:17 AM when the oil side level began reading and eventually reached 93% at 7:10 AM. It is likely that this meter had malfunctioned and was providing false oil level data, which allowed hydrocarbon to build in Tank 105 and get into the strippers through Tank 20. The hydrocarbon flashed into the SWS overhead gas, which is routed to the SRU's. This event resulted in 2, hourly average periods above the 1000-ppm SO₂ corrected to 7% O₂ 1-hour average on SRU4. The 250-ppm SO₂ 12-hour average on SRU3 and SRU4 was also exceeded.

To prevent a reoccurrence of this incident tanks 20 and 105 will be routinely checked to ensure the level gauge is functioning properly, including field verification that the tank level is matching the computer display.

Immediate steps taken to limit the duration and/or quantity of excess emissions:

The full amine acid gas feed was immediately routed to SRU3.

Applicable air operating permit term(s): 4.10, 4.11 and 5.8.15

Estimated Excess Emissions: Based on SO ₂ CEMS and calculated stack flow	Pollutant(s): SO ₂	Pounds (Estimate): 276.
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The incident was the result of the following (check all that apply):

- ☐ Scheduled equipment startup
- ☐ Scheduled equipment shutdown
- ☐ Poor or inadequate design
- ☐ Careless, poor, or inadequate operation
- ☐ Poor or inadequate maintenance
- ☐ A reasonably preventable condition

Did the facility receive any complaints from the public?

- ☒ No
- ☐ Yes (provide details below)

Did the incident result in the violation of an ambient air quality standard

- ☒ No
- ☐ Yes (provide details below)

Root and other contributing causes of incident:

The root cause of this incident was a failed level transmitter on tank 105.

The root cause of the incident was:

(The retention of records of all required monitoring data and support information shall be kept for a period of five years from the date of the report as per the WAC regulation (173-401-615))

- ☒ Identified for the first time
- ☐ Identified as a recurrence (explain previous incident(s) below – provide dates)

Are the emissions from the incident exempted by the NSPS or NESHAP "malfunction" definitions below?

- ☐ No
- ☒ Yes (describe below)

A failed instrument prevented operations from seeing a hydrocarbon build in tank 105. This caused hydrocarbon to get to the SRU, via tank 20.

Definition of NSPS "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or failure of a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 60.2

Definition of NESHAP "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 63.2

Analyses of measures available to reduce likelihood of recurrence (evaluate possible design, operational, and maintenance changes; discuss alternatives, probable effectiveness, and cost; determine if an outside consultant should be retained to assist with analyses):

To prevent a reoccurrence of this incident tanks 20 and 105 will be routinely checked to ensure the level gauge is functioning properly, including field verification that the tank level is matching the computer display.

Description of corrective action to be taken (include commencement and completion dates):

See above

If correction not required, explain basis for conclusion:

See above

Attach Reports, Reference Documents, and Other Backup Material as Necessary. This report satisfies the requirements of both NWCAA regulation 340, 341, 342 and the WAC regulation (173-400-107).

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Is the investigation continuing? ☒ No ☐ Yes

Is the source requesting additional time for completion of the report? ☒ No ☐ Yes

Based upon information and belief formed after reasonable inquiry, I certify that the statements and information in this document and all referenced documents and attachments are true, accurate and complete.

Prepared By: _ Renee Porter_ Date: ___ March 30, 2011

Responsible Official or Designee:  for SGL Date: 4/26/11